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USSR WORK ON THE PROBLEM OF INFLUENZA

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Among infectious diseases, influenza occupies a special position insofar as incidence and loss of man-hours of work are concerned. Up to now, various diseases have been diagnosed as "grippe," virus influenza, and acute catarrhs of the respiratory tract comprised the main group of these diseases.

In spite of the fact that a number of scientific research establishments are investigating the disease, problems of greatest significance to health protection have not yet been solved. First of all, the task consists of developing exact and simple methods for /differential/ laboratory diagnosis of influenza and of acute catarrhs of the respiratory tract, of obtaining effective vaccines, of searching for new therapeutic methods, and of developing organized preventive measures against both influenza and acute catarrns of the respiratory tract.

A scientific conference, held by the Institute of Virusology, the Institute of Experimental Medicine, and the Institute of Infectious Diseases of the Academy of Medical Sciences USSR, has discussed a number of reports together with other scientific research institutes on the subject of influenza. The conference summed up scientific research work and outlined plans for further investigations.

A. S. Gorbunova, A. A. Smorodintsev, V. D. Solov'ev, and others have established the existence of three agents that cause influenza: Virus A, Virus A_1, and Virus B; these differ immunologically and in several of their biological characteristics. Existence of these causative agents must be taken into account in the laboratory diagnosis of influenza and in the manufacture of vaccines and sera. Reports of A. A. Smorodintsev, A. S. Gorbunova, and others pointed out the pronounced variability of the influenza virus in the epidemic process and in laboratory experiments.

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The above-mentioned causative agents are far from stable and have serological variations. Specific immunity of the population is the principal factor which conditions the appearance of new variations of influenza virus, different in their antigenic structure. Knowledge of regularities occurring in the variability and heredity of influenza virus is the basis for the development of methods for obtaining immunogenic vaccine strains.

Evaluation of the following methods of laboratory diagnosis of influenza was presented at the session: hemagglutination reaction to discover the virus (antigen) in the smears taken from the nosopharynx in the early stages of the disease; serological diagnosis; renocytoscopy; etc. Reports of N. N. Orlova, G. I. Khomenko, E. I. Gudkova, and others excited a lively discussion. It was brought out that the most specific and reliable results can be obtained by the serological method of diagnosis, i.e., detection by means of inhibition of the hemagglutination reaction of the growth of antibodies in the serum of those who have recuperated from influenza. This method is simple and convenient for practical use; it is desirable that this method find its way into diagnostic laboratories of therapeutic-preventive establishments. Renocytoscopy deserves serious attention. Not being very specific, this method may be quite useful for differential diagnosis of influenza and acute catarrhs of the respiratory tract. Its use, however, has been slowed down by the fact that the medical industry has not yet undertaken mass production of the special object slides which are required. A number of other methods were discussed at the conference: the reaction of complement fixation for detecting the antigen and antibodies, opsonophagocytic reaction, determination of the electrokinetic potential, etc. These must be tentatively tested in various establishments before decision is reached as to whether one should recommend putting them to practical use.

In regard to early diagnosis of influenza with the aid of the hemagglutination reaction, the method does not seem to be quite specific in either the old modification, with erythrocytes of a guinea pig, or the new, with human erthrocytes of the zero group. It may be retained only as an auxiliary method and is in need of improvement.

Development of simple and reliable methods for the specific diagnosis of influenza and of acute catarrhs of the respiratory tract is far from complete. It must command the principal attention of scientific research in connection with influenza. At the same time, it is necessary to conduct separate diagnoses of influenza and acute catarrhs of the respiratory tract in the largest cities of the country on the basis of clinical and clinical-laboratory diagnostic methods recommended by the conference.

A few sessions of the conference were devoted to the discussion of pathogenesis and immunity, and to clinical aspects and treatment of influenza and acute catarrhs of the respiratory tract. A number of speakers discussed their first attempts to understand the pathogenesis and immunity against influenza and acute catarrhs of the respiratory tract from the point of view of I. P. Pavlov's teaching (N. A. Zeytlenok, V. Ye. Kurashvili, N. N. Sirotinin, and others). However, a considerable effort has yet to be made in that direction.

Reports on the treatment of influenza played a large part in the work of the conference. Besides the information that had to do with general therapy of influenza infections, data were presented that dealt with the use for therapeutic purposes of a combination of anti-influenza sera, ekmolin, atebrin, and other chemotherapeutic preparations.

M. D. Tushinskiy cited a great deal of material dealing with the employment of A. A. Smorodintsev's preparation, which consists of a combination of anti-influenza serum with antibiotics and chemotherapeutic agents. Employment of this preparation is indicated in cases of both virus influenza and acute catarrhs

of the respiratory tract, because the components which make up the preparation act specifically on both the influenza virus and on the bacterial flora of the respiratory tract. The preparation, in the form of a powder, is introduced into the respiratory tract by means of a powder injector; the patient's condition improves quickly; the course of disease is shortened considerably; and complications in the lungs and accessory cavities are avoided. Administration of this preparation checks development of diseases of the grippe type. Serum may also be used as a preventive measure (passive immunity). A report by Z. V. Ermol'eva on the use of ekmolin and its compounds in the treatment of influenza gave rise to a lively discussion. Although ekmolin has positive properties, the low effectiveness of some series of this preparation was noted. This may result from lack of standardization in the production of this preparation by the medical industry. Ekmolin may be used as a prophylactic in collectives; I. I. Nikolaev spoke on that subject. Positive results were also obtained when atebrin was administered at an early stage for the treatment of influenza.

A report was presented to the conference on the work of D. N. Fadeyeva, V. E. Ostapovich, and F. G. Epshtein, dealing with the study of the so-called relapsing influenza. Reports of two therapeutic-sanitary sections of industrial establishments pointed out that chronic diseases of ear, nose, and throat have been diagnosed as relapsing influenza. Preventative efforts in one of these industrial establishments resulted in reduction in the number of people on the sick list and their loss of man-hours of work has been reduced to one seventh of the former figure. This information should be widely publicized.

All these new preparations for the treatment of influenza, and primarily A. A. Smorodintsev's compounded preparation, ought to find wide utilization in the near future in therapeutic-preventive establishments. Facilities are already in existence for the organization of large-scale production of these preparations.

Several meetings were devoted to the problems of epidemiology and specific prophylaxis of influenza.

The reports on the epidemiology of influenza (N. N. Romanenko, A. N. Lozovaya, M. G. Gaydamak, and N. P. Kornyushenko) described peculiarities of the course of the disease in cases of influenza and of acute catarrhs of the respiratory tract, respectively, the occurrence of virus influenza between epidemic periods, and the existence of nonsymptomatic influenza infections. M. G. Gaydamak reported that for influenza to be controlled, isolation of those infected and transfer of children to children's houses for around-the-clock care must be organized.

Prophylactic inoculation against influenza was discussed at the conference. Comparison of the work done in the USSR with that abroad showed that Soviet scientists have far outstripped bourgeois virusologists in this field. While subcutaneous influenza vaccines from killed virus have been used without particular success in the US and England, original methods of preparing live influenza vaccines have been developed in the USSR by A. A. Smorodintsev and O. M. Chalkina, M. I. Sokolov, N. N. Orlova, V. M. Zhdanov, and L. L. Fadeyeva, along with techniques for their manufacture and methods of administration. These vaccines are harmless and produce only weak reactions. Observations showed that timely inoculation reduces incidence of the disease two to three times among those inoculated and also reduces the severity of the course that the disease takes. These data supply sufficient evidence to recommend organization of more extensive observations as to the effectiveness of inoculations against influenza. At the same time, it is necessary to intensify efforts for increasing the effectiveness of vaccines, reducing their cost, and developing techniques for mass production.

The decisions of the conference included critical evaluation of the status of scientific work in the realm of influenza infection; recommendation of new methods for the diagnosis, therapy, and prophylaxis of influenza and of acute

catarrhs of the respiratory tract; and an outline of the most important problems for scientific investigation in this field. The conference decided that scientific workers have taken only the first steps to combat influenza. The problem now is to make the new preparations and methods for control of influenza accessible to all therapeutic-preventive and sanitary-epidemiological agencies.

There is no doubt that if the scientific-experimental work is properly organized and if the efforts of scientific workers and practical health officers are concentrated on the effective fight against influenza, this most important problem in health protection will be successfully solved.

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